



Global food security: The impact of veterinary parasites and parasitologists

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Abstract:

Global food security will require the production of more food using resources including land more efficiently, and with less waste. This goal must be achieved within the context of climate change and while ensuring minimal adverse environmental impact from both crop and livestock production. Disease, especially infectious disease, is a main constraint of biologically efficient livestock production and both endemic and exotic disease results in mortality and morbidity and hence less food than should ideally be available in current farming systems. A significant proportion of diseases affect the safety of food supplies, in addition to or instead of, their effect on volume and quality of food products. Parasitological diseases including those caused by nematodes, trematodes, protozoa and ectoparasites, have widely differing effects on meat, milk and fibre production and many new technologies have been developed in order to prevent or treat them. Approaches to developing better control of parasites have included livestock breeding strategies, improved nutrition and management, and the development of new drugs, diagnostic tests and vaccines. Some of the most important examples include both the development of new anthelmintic products, and better means of using existing drugs in order to maximise their effectiveness in the face of rapidly increasing parasite resistance; diagnostic tests which are able to detect low levels of nucleic acids or proteins from infectious agents rapidly; and vaccines derived from either native or recombinant proteins and designed to stimulate the most appropriate protective response from livestock species. Some of the parasitic diseases affect restricted regions around the world, however most affect very large global populations. The development of technologies of suitable and affordable livestock products for use in developing countries where most pressure on increased production for food will occur, provides a particular challenge. Most if not all new technologies form part of integrated management schemes on farms and these vary hugely in differing systems and geographical regions of the world. If the benefit of improved technologies for optimal health, welfare and biological efficiency of livestock is to be realised, then the veterinary, farming, commercial animal health and public service communities need to learn lessons from past successes and failures in the delivery of newly developed technologies to the farmer. The combination of technology and rural development in the veterinary parasitological field has played a key role in current food production and is well placed to continue this trend to help in ensuring future food requirements for the world.

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Resource Description

Exposure : ☐

weather or climate related pathway by which climate change affects health

Food/Water Quality, Food/Water Security

Food/Water Quality: Pathogen

Food/Water Security: Livestock Productivity

Geographic Feature: ☐

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☐

resource focuses on specific location

Global or Unspecified

Health Co-Benefit/Co-Harm (Adaption/Mitigation): ☐

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact: ☐

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Foodborne/Waterborne Disease, Zoonotic Disease

Zoonotic Disease: Other Zoonotic Disease

Zoonotic Disease (other): Toxoplasmosis; Porcine Cysticercosis; Fasciolosis

Medical Community Engagement: ☐

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

Resource Type: ☐

format or standard characteristic of resource

Review

Timescale: ☐

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☐

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content